

AFTER THE QUAKES: CANTERBURY RESIDENTS' PERCEPTIONS OF REBUILD CONTRACTORS

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Table of Contents

Acknowledgments	i
List of Tables	ii
List of figures	ii
Abstract	1
Introduction	2
Overview.....	2
Natural Disasters and Recovery	3
Disasters.....	3
Recovery Process	4
Canterbury Earthquakes and Recovery	6
The Disaster.....	6
Challenges to Recovery.....	8
Relocation.....	8
Insurance Battles	8
Contractor Issues	10
Contractor Satisfaction.....	10
Contractor Fraud	12
The Present Study.....	13
Method	15
Participants	15
Recruitment	16
Survey	17
Disaster background measure	18
Contractor satisfaction measure	19
Perception of rebuild measure.....	19
Demographic Questions	20
Procedure	20
Results	22
Data Preparation	22
Descriptive Statistics	22
Demographic information about the sample	22
Participant perceptions of the recovery process	24
Contractor specific questions.....	26
Relationship between variables.....	30
Regression analyses.....	37
Discussion	41
Summary of Findings	41
Limitations and Future Research	43
Conclusions and Implications	45
References	48
Appendix A	61
Appendix B	63
Appendix C	64
Appendix D	79
Appendix E	80

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List of Tables

Table 1: Distribution of sample by age	15
Table 2: Distribution of sample by ethnicity	16
Table 3: Background characteristics of sample	23
Table 4: Respondent perceptions of recovery	24
Table 5: How many contractors participants dealt with	27
Table 6: Contractor specific questions for all four contractors combined together (% for Yes, No, N/A)	28
Table 7: Contractor specific questions: all four sections about individual contractor experiences combined together (% , M, SD)	28
Table 8: Chi-square tests: Pearson Chi-Square Significance and %. Relationship with Being Satisfied	30
Table 9: One-way ANOVA: Relationship with Being Satisfied	31
Table 10: Chi-square tests: Pearson Chi-Square Significance %. Relationship with Being Scammed by Contractor	32
Table 11: Linear regression for satisfaction: Beta weights, t-values, and p-values of scale variables	38
Table 12: Linear regression for being scammed: Beta weights, t-values, and p-values of scale variables	39
Table 13: Distribution of sample by suburbs	80

List of figures

Figure 1: Bivariate correlations depicting relationships between satisfaction and statistically significant variables	36
Figure 2: Bivariate correlations depicting relationships between being scammed and statistically significant variables	37

Abstract

There has not been substantial research conducted in the area of fraud and natural disasters. Therefore, this study sought to examine the perceptions of Canterbury residents toward the recovery process following the September 2010 and February 2011 earthquakes and whether residents felt as though contractor fraud occurs in Canterbury. A questionnaire was developed to gauge information about Canterbury residents' self-reports involving the earthquakes, specific contractors involved, parties involved with the recovery process in general, and demographic information. Participants included a total of 213 residents from the Canterbury region who had been involved with contractors and/or insurance companies due to the recovery process. Results indicated that a high percentage of the participants were not satisfied with the recovery process and that almost half of the participants reported feeling scammed by contractors in Canterbury after the 2010 and 2011 earthquakes. Moreover, the results indicate that participants neither agreed with the assessments made about their property losses nor the plans made to recover their properties. In many cases, participants felt pressured and even reluctant to accept these assessments and/or plans. The present study does not seek to explain why contractor fraud exists or what motivates scammers. Conversely, it attempts to demonstrate the perceptions of contractor fraud and satisfaction that have taken place in the aftermath of the Canterbury earthquakes.

Introduction

Overview

In September 2010 and February 2011, Canterbury, New Zealand was hit by a series of earthquakes and aftershocks, causing casualties and severe damage to infrastructures throughout the Canterbury region (Cubrinovski et al., 2011a; Elliott, 2012; Simons, 2016). Research has been conducted on earthquakes (Elliott, 2012; McColl & Burkle, 2012; Rowney, Farvid, & Sibley, 2014), and a great deal has been dedicated to individual accounts and experiences of the aftermath of these events (Gawith, 2011). However, not a great deal of research has been devoted to the actual recovery process and to residents' perceptions of the process. Simons (2016) found that the New Zealand Government's and Canterbury residents' views about the success of the recovery process were completely different. In addition, the extensive destruction created by these earthquakes, followed by large sums of funding spent on recovery efforts, has generated a situation where victims of disasters are targeted for financial exploitation (Simons, 2016).

According to Davila, Marquart, and Mullings (2005) and Trahan, Marquart, and Mullings (2005), contractor fraud is a common form of criminality following natural disasters and it occurs far more often than it is reported. As mentioned above, no extensive research has been conducted on the actual recovery process and residents' perceptions of contractor fraud following the Canterbury earthquakes (Davila, 2005). Hence, an online survey was designed to examine the perceptions of Canterbury residents toward contractors involved in the rebuild following the September 2010 and February 2011 earthquakes. This research seeks to raise awareness and prevention of fraud following

disasters. Moreover, the focus of this research is the individual experiences of those who went through both a natural disaster and possible financial exploitation, and these will provide a benchmark for future research.

Natural Disasters and Recovery

Disasters

“Disaster” is a complex topic which does not have one generally utilised definition. However, the World Health Organization defines a disaster as “any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health and human services” (World Health Organization, 2002, p. 1). This definition is utilised to describe disasters in this report. Disasters such as earthquakes, affect populations around the world frequently, causing enormous devastation, fatalities, disruption, and challenges to civilisation (Boin, McConnell & Hart, 2008; Button, 2010; Greenhill, 2011). According to Yamamura (2014) such natural disasters cause considerable damage as well as increase financial exploitation. The frequency of disasters influences the level of exploitation (Yamamura, 2014). Disasters are divided into different categories (Yamamura, 2014), but for the purpose of this report, only earthquakes are considered.

There is a long history of earthquakes and their impact on humanity (Escaleras, Anbarci & Register, 2007). Earthquakes occur when tectonic plates rub against each other building pressure beneath the surface which is then released as an earthquake. Earthquakes are frequent and occur in almost every country; some may be destructive (Cubrinovski et al, 2011b; Escaleras, Anbarci & Register, 2007). According to Green (2005), an earthquake can be classified as a disaster only when it hits a populated area and otherwise categorised a natural energy release. In New Zealand, it is estimated that between 10,000

and 15,000 earthquakes take place every year (McColl & Burkle, 2012); however, many are not felt.

Disasters include different stages in which various concerns come into play (Simons, 2016). Even though disasters have been broadly studied, not a lot is known about the individual accounts during the efforts of restoring stability in life (Boin, McConnell & Hart, 2008). According to researchers (Sampson & Groves, 1989; Voigt & Thornton, 2015), vulnerable populations such as children, women, and the elderly are the most affected by natural disasters. Disasters also create inequalities among civilisations that will continue to exist even long after the disaster has passed (Voigt & Thornton, 2015; Özerdem & Barakat, 2000). When reporting about disasters, a great deal is cast upon, for example, emergency responders and the Government whereas, individual experiences of those who had to go through a disaster and its consequences are more or less cast aside (Simons, 2016). It is valuable to report the stories of these individuals from the perspective of disaster and fraud.

Recovery Process

Disasters are often followed by an effective emergency response to address the damage and loss created by the disaster itself (Sadiqi, Coffey & Trigunarsyah, 2012). These response efforts are then transferred to the next recovery stage to help with the post-disaster recovery. Unlike the effective emergency response to disasters, post-disaster recovery efforts are frequently unsuccessful in reaching their goals (Bursik, 1988; Sadiqi, Coffey & Trigunarsyah, 2012). O'Brien, O'Keefe, Gadema, and Swords (2010) suggest that disaster management consists of two phases: response (rescue) and recovery (restoration). Phase one refers to the period in which the disaster is occurring and its immediate aftermath. During this phase, the main concern is the well-being and safety of

people, whereas fraud is the farthest thing from people's minds. Phase two, on the other hand, refers to the period when response is transferred into recovery. While well-being and safety remain a concern, restoration to normal life and fraud are also introduced. Phase two can potentially take a long time which people must be prepared for (Kerstein, 2005). Essentially, the recovery process consists of squeezing years of development into a short period of time (Kachali, 2013).

The post-disaster recovery process is diverse and unique to each situation which makes the task challenging to complete. This variability is why recovery practices and policies that are compatible with the extent of a disaster and the needs of the community need to be in place, especially if an area is prone to disasters (Sadiqi, Coffey & Trigunarsyah, 2012). Although the need for improving current recovery practices is recognised, this topic is still poorly examined. According to Sadiqi, Coffey, and Trigunarsyah (2012), the unsuccessful post-disaster recovery efforts can be linked back to a lack of community participation, problems with relocation, misusing project resources and funds, exploitation of affected residents, and not meeting community needs. Consequently, different parties were and still are frustrated by the speed of the recovery process (Campbell, 2014; Meier, 2015). However, there are a number of reasons why processes take so long. In Christchurch these include, reoccurrence of earthquakes and aftershocks, the number of people affected, the extent of destruction, lack of resources, and changes in policies and regulations (Brown, Seville, & Vargo, 2013; Chang-Richards, Wilkinson, & Seville, 2012; Leeson & Sobel, 2008). The post-disaster recovery process is complicated and demanding, which is why planning is essential (Dzulkarnaen, Roosli & Ab Samah, 2014; Özerdem & Barakat, 2000).

Canterbury Earthquakes and Recovery

The Disaster

The Canterbury earthquakes occurred in September 2010 and February 2011, which caused fatalities, severe damage to buildings, properties, and roads, as well as forcing many residents to relocate (Bradley & Cubrinovski, 2011; Carlton, 2013; Elliott, 2012; Giovinazzi & Stevenson, 2011; Ihaka, 2011; McLean et al., 2012; Moore, 2011; Roome, 2011; Rowney, Farvid, & Sibley, 2014; Simons, 2016). On September the 4th 2010 at 04:35, a 7.1 earthquake 11km deep struck Darfield, Canterbury (Bruns & Burgess, 2012; McLean et al., 2012). The earthquake did significant damage to properties, but no casualties were reported. However, the 6.3 earthquake 5km deep on the 22nd of February 2011 at 12:51, which was technically an aftershock caused by the September 2010 earthquake, exacerbated the damage from previous shakes and caused 181 fatalities and destruction that affected the whole Canterbury area (Bruns & Burgess, 2012; Elliott, 2012; Simons, 2016). Furthermore, due to the shallowness of the February earthquake, the impact on surface structures was significant, resulting in approximately \$15-20 billion NZD in reconstruction expenses (Rotherham as cited in Bruns & Burgess, 2012; Burrell & Kestle, 2013). The cost of rebuild has been estimated to be equivalent to 20 % of New Zealand's Gross Domestic Product (New Zealand UPR, 2014). Since then, over 11,000 injuries have been reported and aftershocks have frequently occurred (Gawith, 2011).

To help homeowners in the occurrence of a natural disaster such as an earthquake, Earthquake Commission (EQC) was established in 1945 (Earthquake Commission, 2015). The purpose of EQC is to support homeowners and insurance providers as well as provide \$100,000 to be paid for successful claimants in the aftermath of a natural disaster. After the 2010 and 2011 Canterbury earthquakes, EQC played a huge role in the recovery

process. Moreover, EQC turned out to be responsible for the most extensive recovery process in the world (Earthquake Commission, 2015). In order to manage the substantial workload, EQC, recruited Fletcher Earthquake Recovery (EQR) to manage the recovery of residential construction (Drayton & Verdon, 2013)

Despite the existing programmes established to manage the recovery processes, vulnerability also emerged with the recovery process. This posed questions such as: who is responsible, when is it going to happen, where am I going to live, and how did this happen? (Button, 2010; Simons, 2016). According to Seadon and Bach (2015), the recovery efforts led by the Government were a complete success; however, there is no mention of the residents who are still, five years later, struggling with the recovery process.

Simons (2016) reported that 80 % of respondents had negative attitudes toward the earthquake recovery process. According to the respondents, the recovery process has been slow; information dubious; and transparency questionable. Miles (2012) describes Canterbury residents as “faceless numbers” (p. 12) and concern for residents’ well-being is not of concern to the Government. There appears to be a gap between the attitudes of the parties involved with the handling of the recovery process and the attitudes of parties on the receiving end of the recovery (Simons, 2016). It is straightforward to obtain a version of the crisis from the perspectives of authorities, but challenging to recognise the Canterbury residents’ perspectives (Simons, 2016). A question then follows: *What are the attitudes and perceptions of Canterbury residents on the recovery process?*

Challenges to Recovery

Relocation

The Canterbury earthquakes led to one of the biggest population movements reported in New Zealand (Dickinson, 2013; Statistics New Zealand, 2011). According to Elliott (2012) and Love (2011), approximately 70,000 residents left Christchurch after the February earthquakes. Moreover, data from the New Zealand Post indicate that nearly 20,000 residents relocated within Christchurch after the earthquakes (Dickinson, 2013). Before the sequence of earthquakes started in 2010, Canterbury's population was increasing and was expected to keep growing in the future (Love, 2011).

Hence, the sequence of earthquakes led to extreme disruption within the country (Naswall, Britt, Renouf, Roberts, & Moss, 2013). Many have had to relocate temporarily or permanently due to various reasons such as damage to houses and infrastructure, avoiding future earthquakes and aftershocks, and inaccessibility to social services (Love, 2011). Due to insurance battles and problems with contractors, some Cantabrians are still – over five years later – unable to go back home (Macfie, 2013; Steeman, 2014). Since these kinds of issues have not occurred in Canterbury before, knowing where to look for help has also been a big issue (Copes, Kerley, Mason, & Van Wyk, 2001; Naswall, Britt, Renouf, Roberts, & Moss, 2013).

Insurance Battles

Following the Canterbury earthquakes, another crisis – insurance battles – hit the area. The battles refer to insurance companies and government failing to provide the support they were supposed to provide (Burrell & Kestle, 2013; Dickinson, 2013; Heather,

2011; Macfie, 2013). This left many Canterbury residents angry, upset, and vulnerable (Anderson, 2014; O'Callaghan, 2015; Steeman, 2014).

According to Miles (2012):

Christchurch has become an on-going saga about an unprecedented catastrophe, with a population largely left to wallow in its own misery. After some months of researching this sorry state of affairs, a story emerges of incompetence, dishonesty, professional vested interests, cynical corporate greed and government complicity and self-service (p. 211).

The problems with private and governmental organisations have been examined by different researchers and the recovery phase is becoming more exposed than the earthquakes themselves (Dickinson, 2013).

According to Greig (2012), the Canterbury earthquakes are the third most expensive insurance incident ever worldwide. Different factors that have affected the outcome of the recovery such as funding, management, and decision making (Dickinson, 2013). These have all created issues that the disaster itself did not create. Therefore, private organisations have been under criticism after the earthquakes. And yet, insurance companies are denying or reducing claims, changing policy coverage, stalling processes, ignoring or changing engineering reports, and offering payments under the market price (Dickinson, 2013; Macfie, 2013; McDonald, 2012a; McDonald, 2012b; Meier, 2015; Pearson, 2014; Steeman, 2013; Wright, 2015c).

Contractor Issues

Contractor Satisfaction

Usually, the parties involved in a construction project comprise the client, contractors, designers, subcontractors, and suppliers (Palaneeswaran, Ng, & Kumaraswamy, 2006; Soetanto & Proverbs, 2002). Moreover, contractor work is mostly project-based and varies in nature (Palaneeswaran, Ng, & Kumaraswamy, 2006). Contracts between clients and building companies allow work to be done and in most cases, they are bound by mutually agreed-upon documents that provide answers if a conflict occurs (William & Ashley, 1987). For the most part, these contracts characterise the clients' interests and needs and the building companies agree on these issues. According to William and Ashley (1987), contractors may attempt to find contract loopholes in order to bend the rules to benefit themselves.

Selecting a contractor to perform a construction project can be a difficult task. Many factors deserve consideration in order to achieve a successful build. Contractor selection according to Holt, Olomolaiye, and Harris (1994), is affected by three factors: (1) current workload of the builder; (2) past experiences; and, (3) resource management. Listing and ranking these factors may help other clients in making a decision on which contractor to choose for their project (Holt, Olomolaiye, & Harris, 1994). Satisfied clients are key for a successful building company, and their satisfaction also determines the amount of future work for the company (Torbica & Stroh, 2001).

At the national and international level, contractor success can be determined by the quality of work completed (Ahmed & Kangari, 1995; Palaneeswaran, Ng, & Kumaraswamy, 2006). In order to measure satisfaction, the appropriate terms need to be defined. For the benefit of this project, client can be referred to as the individual who

provides compensation for work completed, whereas satisfaction can be defined as outcomes being met by expectations (Ahmed & Kangari, 1995). In the context of contractor satisfaction, clients are likely to be pleased when the building task at hand is completed to the clients' expectations (Torbica & Stroh, 2001). To meet the clients' expectations, the following steps should be taken: (1) to determine needs and expectations; (2) to translate needs into a plan; and, (3) to complete task within the cost and timeframe set for the project (Ahmed & Kangari, 1995).

The interactions, communication, coordination, and relations these parties have together define the success of a construction project (Ahmed & Kangari, 1995; Soento & Proverbs, 2002). Therefore, effectiveness is determined by reciprocity of actions performed by these parties, where requirements and tasks completed go hand-in-hand. Moreover, within the construction context, performance, response to complaints, as well as success criteria salience and agreement are also considered to be a contributing factor to the success and effectiveness of the project (Ahmed & Kangari, 1995; Palaneeswaran, Ng, & Kumaraswamy, 2006; Soento & Proverbs, 2002).

Poor contractor performance is not a new concept and according to Masrom, Skitmore and Bridge (2013), poor performance within the building industry is quite common. For example, 50 % of cases where the quality of a build was unsatisfactory can be recognised as error in design, around 40 % as error in construction itself, and 10 % as fault in the resources and supplies (Masrom, Skitmore, & Bridge, 2013). In order to monitor the progress of a project and relationships between parties, performance should be regularly reviewed. This allows the parties to evaluate and improve the work in progress, which is beneficial for the project in general (Soetanto & Proverbs, 2002). Many studies indicate that the best way to improve successful construction projects is through performance measurement (Masrom, Skitmore, & Bridge, 2013).

Contractor Fraud

Where a disaster goes, fraud usually follows. Fraud is commonly described as a 20th century crime or, in other words, a new crime (Levi, 1987; Norton & Walker, 2000). Disaster fraud can be categorised as its own type of fraud. There are different types of disaster fraud, however, for the purpose of this report only one, contractor fraud, is explored (Bergen, 2012; Favor & Lamont, 2009).

Disasters, in any form, invite people for exploitation. According to Van Wilsem (2011), victimisation occurs when targets are exposed to fraudsters. The larger the exposure, the larger the chances of victimisation (Mason & Benson, 1996; Van Wilsem, 2011; Van Wyk & Benson, 1997). In many occasions, fraud goes unnoticed since the focus is on helping people to restore their lives (Conway, 2014; Cromwell, Dunham, Akers, & Lanza-Kaduce, 1995). Fraud is complex, and monetary-related losses can become extensive (Norton & Walker, 2000). According to Davila et al. (2005), and Trahan, Marquart, and Mullings (2005), contractor fraud is commonly reported following natural disasters and occurs more frequently than reported.

Fraud can be described as a misinterpretation of information, where one party intentionally tries to mislead another party with a promise of services and financial benefits which do not exist (Norton & Walker, 2000; Titus, Heinzelmann, & Boyle 1995). Contractor fraud is defined as an agreement where one party compensates another party for work that is never completed, or can also occur in the form of overcharging for items or completing work below standards (Contractor Fraud Alliance, 2001; Deem, 2000; Titus, Heinzelmann, & Boyle, 1995). Moreover, there are four types of contractors involved with fraudulent behaviour: (1) unlicensed contractors working up to standards; (2) unlicensed contractors not working up to standards; (3) licenced contractors signing up to do more

than they could; and (4) licenced contractors not working up to standards (Kernstein, 2005; Remodeler's Guide, 2007).

Contractor fraud is reported to be one of the most prevalent forms of criminality (Davila, Marquart, & Mullings, 2005). For example, in 2004, fraud schemes surfaced in North Carolina in the United States following a natural disaster (Boettke et al. 2007). There were reports of scammers asking homeowners to pay a fee to be put on a list to have their home repaired, and after signing up, they were going to receive a large grant which did not exist. Other reports warned about scammers offering to fill out disaster loan applications for a fee, which do not exist for legitimate businesses (FEMA, 2002). In 2014, after a natural disaster in Michigan, nearly 70 million US dollars was provided to residents affected by the disaster for recovery assistance. Not long after the disaster struck, authorities started receiving reports of fake building contractors trying to get their share of the recovery assistance money by targeting survivors with different repair scams (FEMA, 2002). There have been similar reports here in Canterbury, but nothing has been done about it so far (Baker, 2013; Dally & Meier, 2015). According to Ensor (2015), there were approximately 30 complaints made in Canterbury about contractors to the Serious Fraud Office (SFO). The SFO reported that the fraud cases experienced could end up costing up to \$1billion New Zealand dollars (Baker, 2013). It is evident that contractor fraud does occur, and is reported, however, not to a necessary extent (Ensor & Van Beynen, 2014).

The Present Study

As described thus far, there has not been substantial research conducted in the area of fraud and natural disasters (Davila, 2005). Extensive research has been conducted on earthquakes (Elliott, 2012; McColl & Burkle, 2012; Rowney, Farvid, & Sibley, 2014) and to individual accounts and experiences of the aftermath of these events (Gawith, 2011).

Davila et al. (2005) have tried to develop a research agenda on the relations between natural disasters and financial exploitation. Natural disasters reportedly create an opportunity for scammers to target survivors who are trying to return back to the normal life as soon as possible. The present research does not attempt to explain why contractor fraud exists or what motivates scammers, rather, it attempts to show that fraud occurs in Canterbury, to raise awareness of it, and also try to prevent it. In doing so, efforts can be made to warn natural disaster victims. The aim of this research is to examine the perceptions of Canterbury residents toward the recovery process following the September 2010 and February 2011 earthquakes and whether residents feel as though they have been victims of contractor fraud in Canterbury.

Method

Participants

Based on a power of .70 with a 2-tailed correlation of 0.18, over 200 participants were recruited. Participants included a total of 213 (78 males, 135 females) residents from the Canterbury region who had been involved with contractors and/or insurance companies due to the rebuild. Participants' ages ranged from 18 to 65 years and over (see Table 1 below). Most participants were of European descent (see Table 2). Only participants affected by the Canterbury earthquakes and involved with contractors and/or insurance companies were eligible to participate.

Table 1
Distribution of Sample by age

Age	Frequency	%
18-24	8	3.8
25-34	22	10.3
35-44	54	25.4
45-54	60	28.2
55-64	51	23.9
65 or over	18	8.5

Table 2

Distribution of Sample by Ethnicity

Ethnicity	Frequency	%
European (includes NZ European)	170	79.8
NZ Maori	11	5.2
African	1	0.5
Asian	6	2.8
Latin American	2	0.9
Pacific Islander	10	4.7
Middle Eastern	3	1.4
Other	10	4.7

Recruitment

Individuals were invited to participate through a variety of mediums, including social media (Facebook); flyers distributed around schools, recreational centres, organisations, and libraries; and door knocking in temporary housing villages and randomly selected residential streets in Canterbury (see Appendix D). Door knocking occurred in the temporary villages (Linwood, Rangers Park, and Rawhiti) set up to help Canterbury residents who are unable to live in their homes due to the earthquakes. In addition, selected suburbs (Addington, Aranui, Avonhead, Belfast, Bishopdale, Brydwr, Burnside, Cashmere, City central, Dallington, Fendalton, Halswell, Heathcote Valley, Hillsborough, Hornby, Ilam, Linwood, Mairehau, Merivale, New Brighton, Papanui, Parklands, Phillipstown, Riccarton, Shirley, Spreydon, St. Albans, Upper Riccarton, Waltham, and Woolston) were visited to recruit participants by either distributing flyers or door knocking. For safety reasons, two people executed door knocking together and were

provided 5 x \$50 Westfield vouchers (one voucher per day for five days). Thirty-two participants filled out a paper version of the questionnaire; 181 answered online.

A number of open and closed Facebook groups were created to provide Canterbury earthquake survivors support and advice. These groups were used as sources to recruit participants and gauge information about individual experiences. Some closed groups are private due to the nature of the issues discussed in the group. The Facebook groups selected to assist with the research include: TC3 Residents, Sumner Residents – displaced by earthquake 22/2/11, EQC and Insurance Woes, Christchurch Earthquake dodgy repairs, TC3 Rebuild Group, Rebuild Christchurch right, EQC – earthquake land damage, Rebuild Christchurch right, Christchurch earthquake journal, Supporting Christchurch earthquake 22-02-2011, Supporting Christchurch earthquake, Canterbury red zones, Rebuild Christchurch, Claiming your igloo on EQC when an earthquake destroys it, The Christchurch Fiasco, EQC group action – page, Breakthrough services, Canterbury claimants, Christchurch resilience reading resources, Canterbury earthquake survivors trust, Christchurch news, Good news Canty, Yes We Can, University of Canterbury, Bachelor of Arts, Psychology, Education, West Melton community page, Somerfield residents' association, Prebbleton community group, Peoples Independent Republic of New Brighton, Avon-Otakaro network, Mt Pleasant community Christchurch, Addington residents' association, Avondale residents' association, Cashmere residents' association, Sumner community residents' association, and Northwood residents' association. These groups have members ranging from the low hundreds to high thousands.

Survey

A survey was utilised as a source of data collection, which focused on gathering information relating to Canterbury residents' perceptions toward contractors involved with

the rebuild following the September 2010 and February 2011 earthquakes and aftershocks. The survey was designed utilising previous studies and Canterbury residents' individual experiences to combine disaster and fraud items into one questionnaire. An online programme, Qualtrics, was used to design the questionnaire and collect data. The front page of the survey (see Appendix A) presented the study, described the purpose, provided participation instructions and researcher contacts, and provided information for informed consent (see Appendix B). The survey was separated into four sections (for the complete questionnaire, see Appendix C). The questionnaire took approximately 10-15 minutes to complete.

Disaster background measure

The first section contained a total of 14 questions about individuals' rebuild background information. These questions included the length of time living in Canterbury (*How long have you lived in Christchurch?*), being present during the earthquakes and/or aftershocks (*Were you present during the Canterbury earthquakes or the aftershocks?*), having (recalling) a need or want to relocate (*Did you need or choose to relocate, due to damage, after any of the major earthquakes that have occurred in Canterbury?*), receiving damage to property (*Did you receive any damage to your property resulting from any of the major earthquakes?*), the EQC \$100,000 cap (*Which of these applies to you?*), type of repair and claim (*Please tick if you have made any of the following claims*), pressure of signing the contract (*Did you feel pressured by any of the parties involved to accept a Scope of Works you did not think was right?*) and who was involved. An example item was: *Who was the main building or rebuilding contractor chosen by?* Participants were asked to tick one or more options which applied to them *EQC/EQR/Insurance Company/You/Other* (Appendix C).

Contractor satisfaction measure

The second part asked about specific contractors involved in individuals' property repairs/rebuild. Participants answered the same set of 12 questions for up to four contractors. There were four different sections for each contractor: Contractor 1, Contractor 2, Contractor 3, and Contractor 4. The participants were only asked to fill in as many contractor sections as applied to them. Contractor-related questions included the type of work completed (*What kind of work were the contractors assigned to complete?*), competence (*Did you feel as though the contractor was competent to do the work?*) and untrustworthiness of the contractors, the extent of work completed (*How much work did the contractor complete?*), the quality of work completed (*What was the quality of the contractors work?*), attitudes toward signing off the repairs (*Were you pressured into signing off the repairs/rebuild done by this contractor?*), getting the contractor to do non-repair work (*Did you get a contractor to do any non-repair work?*), and perceptions of being scammed (*Did you feel as though you were a victim of a scam by the contractor?*). An example item was: *How trustworthy would you consider this contractor to be?* A 5-point Likert-scale was utilised to answer this question from (1) *Not at all* to (5) *Completely*.

Perception of rebuild measure

Section 3 contained 12 questions about perceptions of parties involved with the recovery process. A range of topics was covered, which included re-reviewing property repairs/rebuild (*Have your property repairs/rebuild been re-reviewed?*), legal aspects of the recovery process (*Did you seek legal help at any point of the recovery process?*), untrustworthiness of insurance companies and contractors in general (*How trustworthy would you consider contractors in general to be?*), and satisfaction with the overall

recovery process (*How satisfied are you with the outcome of the recovery efforts made to your property?*). An example item was: *Did the recovery process cause more stress than the earthquake itself?* A 3-point Likert-scale was utilised to answer this question with anchors of *Much more*, *About the same*, and *Much less*. Participants were asked to tick *Not Applicable* if appropriate.

Demographic Questions

The fourth and last section contained six demographic questions including participants' age (*What is your age?*), gender (*Gender: Male/Female*), ethnicity (*With which racial or ethnic category do you identify?*), marital and occupational status (*What is your current occupational status?*), and current residential location (*Which Christchurch suburb do you currently reside in?*). Participants were given different options and asked to tick the ones that applied to them. All answers were organised into pre-existing categories ranging from two categories (Yes/No) to 72 categories (alphabetised suburb names from A to Z).

Procedure

A survey was designed to record Canterbury residents' perceptions on the rebuild and to detect whether contractor fraud occurred in Canterbury following the earthquakes and to what extent. Previous studies, which were similar in nature, as well as Canterbury residents' individual experiences, were used as an example for generating the questionnaire that consisted of disaster and fraud items. Participants were asked to complete a self-administered survey either as an online or paper version. Online participants, thus, volunteered by clicking a link to a website (www.qualtrics.com). Participants who completed the paper version of the questionnaire were recruited via door knocking. Participants were asked to fill in the questionnaire which was collected one

week from recruitment. Participants were asked to place the completed questionnaire in an envelope provided to them and separate the last page of the questionnaire (asking for their email address to enter the prize draw) from the questionnaire. For each question, a 3-point, a 5-point, or a 7-point Likert scale, Yes/No options or other readily chosen options (e.g., demographics) were used. All of the recruiting methods contained details of how to contact the researcher, who could participate, ethical considerations, anonymity of participants, how to consent, and what incentives were provided.

In return for completing the questionnaire, participants were offered a chance to enter a draw to win one of 6 x \$100 vouchers. To enter the prize it was necessary to collect an email address at the end of the survey so participants could be notified that they had won. This information was kept separate from the completed questionnaires.

A pilot test was conducted to ensure survey items were clear and comprehensible. All instruments were tested with a chosen sample of 20 participants who were asked to provide feedback. Where necessary, adjustments to the instruments were made before administering the full scale to participants. For the pilot study, Facebook recruits were chosen because of their easy accessibility for the study.

Results

Data Preparation

An online program (Qualtrics) recorded the data for the participants for each question. Data were then directly downloaded onto a Microsoft Excel data file and later onto SPSS for analysis. Upon data inspection it was found that there were some missing data values. There did not seem to be any pattern or reasons why the data were missing (Soley-Bori, 2013), nor were sensitive questions asked (such as income). Missing data were imputed into figures based on similar demographic responses and analyses were carried out with the available data. Altogether, the occurrence of missing data was less than 1.5%.

To examine the data, this section of the report details descriptive statistics, cross-tabulation, and Analysis of Variance (ANOVA). These analyses are used to find patterns and discrepancies in data, as well as to measure associations. Further examination concentrates on relationships of satisfaction and perception of being scammed with other variables. The results are shown in Tables 3-12 and Figures 1-2.

Descriptive Statistics

Demographic information about the sample

Most participants were living in Canterbury, and had been residents for over 30 years. Many participants also reported being in Canterbury at the time, and a large number

reported needing or choosing to relocate due to the earthquakes. The majority of participants reported currently working full-time (see Table 3).

Table 3

Background characteristics of the sample

Variable	Frequency	%
Duration in Canterbury		
< 1 year	3	1.4
1-9 years	18	8.5
10-19 years	25	11.7
20-29 years	32	15.0
30+years	135	63.4
Present during the Canterbury earthquakes or the aftershocks		
Yes	209	98.1
No	4	1.9
Need to relocate		
Yes	115	54.0
No	98	46.0
Current Occupation		
Full-time employment	113	53.1
Part-time employment	50	23.5
Full-time student	6	2.8
Part-time student	2	0.9
Unemployed	15	7.0
Retired	27	12.7

The majority of respondents were from New Brighton or identified themselves as other, but there was a mix of participants from all over Canterbury. Other could include participants who have since left Christchurch (See Appendix E for more detail).

Participant perceptions of the recovery process

The participants answered a series of questions about their perceptions of the recovery process. These findings are reported in Table 4.

Table 4

Respondent perceptions of recovery

Variable	Frequency	%
Value of damage assessed (NZD)		
< \$10,000	4	1.9
\$10,000 to \$50,000	37	17.4
\$50,000 to \$100,000	46	21.6
\$100,000 to 500,000	78	36.3
\$500,000+	39	18.3
Currently unknown	9	4.2
Agreed with value of damage assessment		
Yes	100	46.9
Too High	2	0.9
Too Low	111	52.1
Feeling pressured to accept Scope of Works		
A great deal	95	44.6
A lot	32	15.0

A moderate amount	23	10.8
A little	28	13.6
None at all	34	16.0
Feelings toward complaints being handled fairly		
Yes	36	16.9
No	119	55.9
Not Applicable	58	27.2
Sought legal help during the recovery process		
Yes	113	53.1
No	100	46.9
Feelings of being let down by the law		
Yes	109	51.2
No	59	27.7
N/A	45	21.1
Recovery causing more stress than the earthquakes		
Much more	159	74.6
About the same	34	16.0
Much less	20	9.4
Satisfaction with recovery efforts made		
Extremely satisfied	27	12.7
Moderately satisfied	37	17.4
Slightly satisfied	25	11.7
Neither satisfied nor dissatisfied	21	9.9

Slightly dissatisfied	11	5.2
Moderately dissatisfied	22	10.3
Extremely dissatisfied	70	32.9
Length of recovery process		
Completed	137	64.3
Not completed	76	35.7

The first research question stated that the aim of this research is to examine the perceptions of Canterbury residents toward contractors involved in the rebuild following the September 2010 and February 2011 earthquakes. The results show that, generally, a high percentage of participants did not agree with plans or assessments made by different organisations and also felt pressured and reluctant to accept these evaluations and estimates. Many people also reported feeling let down, stressed, and dissatisfied with parties involved with the recovery processes. For many participants the recovery process took years to be completed. This table indicates that there are many dissatisfied residents in Canterbury.

Contractor specific questions

The previous section reported the perceptions of the participants about the recovery processes in general. This section concentrates on presenting contractor specific issues.

Table 5

How many contractors participants dealt with

Variable	%
Contractor 1	100%
Contractor 2	34.3%
Contractor 3	12.7%
Contractor 4	3.3%

Table 5 presents percentages of how many contractors (contractor 1, contractor 2, contractor 3, and contractor 4) participants dealt with. Most participants dealt with only one contractor, and only a small percentage dealt with four (or more) contractors. Tables 6 and 7 presents findings for contractors that participants dealt with during their recovery process and their perceptions of these specific contractors.

Table 6

Contractor specific questions for all four contractors combined together (% for Yes, No, N/A)

Variable	Yes	No	N/A
Deposit required prior to the commencement of work	5.3%	77.7%	16.9%
Pressure into signing off the repairs/rebuild	34.5%	35.1%	30.4%
Reluctant to sign off repairs	45.1%	28.5%	26.3%
Property repairs/rebuild been re-reviewed	57.3%	26.8%	16.0%
Feelings of being a victim of a scam	45.5%	54.5%	
Have your views towards builders in general changed due to your experiences	67.1%	32.9%	

Table 7

Contractor specific questions: all four sections about individual contractor experiences combined together (% , M, SD)

Variable	%	M	SD
Untrustworthiness of specific contractors		3.73	1.19
1. Extremely trustworthy	9.1%		
2. Very trustworthy	14.1%		
3. Moderately trustworthy	17.2%		
4. Slightly trustworthy	16.3%		
5. Not trustworthy at all	43.3%		

Untrustworthiness of	3.47	1.10
contractors in general		
1. Extremely trustworthy	4.2%	
2. Very trustworthy	12.7%	
3. Moderately trustworthy	40.4%	
4. Slightly trustworthy	18.3%	
5. Not trustworthy at all	24.4%	
How much work was completed		
A great deal	23.3%	
A lot	20.4%	
A moderate amount	23.3%	
A little	11.6%	
None at all	0.9%	
Did not start	20.7%	
Re-review of rebuild/repairs		
No further action	55.9%	
Cash pay-out	7.5%	
Further repairs	31.0%	
Rebuild	5.6%	

Note: Means and SDs derived for the coding of responses shown in the tables

Table 6 and 7 presented the frequencies for contractor specific questions. Specific contractors are reported to be most untrustworthy; however, insurance providers ($M=3.89$, $SD=1.11$) and contractors in general ($M=3.47$, $SD=1.10$) are not far behind. While some participants reported being satisfied with their recovery processes, many reported being dissatisfied. Out of all the respondents, almost half felt as though they were victims of a scam and over half reported their feelings toward contractors having changed due to their

experiences with the rebuild. Overall, participants reported having issues trusting insurance companies and contractors as well as changing their opinions due to their experiences with contractors. So far, patterns of dissatisfaction and perceptions of being scammed have been established. In the next section, an examination into associations between variables is commenced.

Relationship between variables

This section concentrates on measuring associations between variables. Relationships between satisfaction and being scammed with other variables were assessed utilising Chi-Square tests of significance for independence as well as one-way ANOVA. The results are shown in Tables 8-10.

Table 8

Chi-Square Tests: Pearson Chi-Square Significance and %. Relationship with Being Satisfied

	χ^2	Sig.	Satisfied %	Neither satisfied nor dissatisfied %	Dissatisfied %
EQC \$100,000 cap	42.13	<.001			
Undercap			16.0	1.6	31.4
Overcap			40.1	8.5	51.4
Contractor competent to complete work	104.75	<.001			
Yes			31.7	3.8	10.5
No			8.4	4.7	37.9
Recommended the contractor	88.11	<.001			
Yes			17.6	0.6	7.1
No			22.6	7.8	44.2
Sought legal help	83.44	<.001			
Yes			15.4	6.3	33.5
No			24.6	2.2	17.9
Feeling let down by law	108.32	<.001			

Yes			8.4	5.0	36.7
No			22.0	1.9	4.1
N/A			9.6	1.6	10.7
Changed views toward contractors	76.97	<.001			
Yes			19.5	7.2	44.5
No			20.7	1.3	6.9

Table 9

One-way ANOVA: Relationship with Being Satisfied

Recovery causing more stress than the earthquakes	M	SD
Much more	5.08	2.08
About the same	3.48	2.23
Much less	1.41	.57

Note: The difference is significant with $F(2,316) = 50.09, p < .001$

Tables 8 and 9 represent significant associations between satisfaction and other variables. The results show statistically significant relationships between satisfaction levels and EQC cap, contractors' competence to complete work, recommended contractor to others, sought legal help, feeling let down by law, recovery causing more stress than the earthquakes, and changed views toward contractors. Participants felt dissatisfied with their experiences in both EQC \$100,000 categories and when contractors were not competent to do their assigned work. Similarly, when participants were not satisfied with their contractors, they were less likely to recommend them to others and more likely to seek legal help, and feel let down by the law. As expected, dissatisfied participants reported changing their views about contractors after their experiences. In regards with feeling that the recovery process caused more stress than the earthquakes themselves, one-way ANOVA was utilised. Overall, the results show why participants felt dissatisfied with the recovery efforts. Table 11 below introduces the associations between being scammed and different variables.

Table 10

Chi-Square Test: Pearson Chi-Square Significance and %. Relationships with Being Scammed by Contractor

	χ^2	Sig.	Yes %	No %
\$ value of assessment	18.96	<.001		
< \$10,000			0.9	0.9
\$10,000 to \$50,000			6.0	8.2
\$50,000 to \$100,000			15.4	11.3
\$100,000 to \$500,000			17.6	18.5
\$500,000+			3.8	13.8
EQC \$100,000 cap				

Undercap	7.40	<.001	26.0	19.4
Overcap			22.9	31.7
Repair option	30.02	<.001		
Opting out			2.2	10.0
Home repair			18.2	20.7
Home rebuild			10.0	16.9
Not resolved			14.4	6.3
Contractor chosen	23.24	<.001		
EQC			9.7	12.2
EQR			18.2	9.4
Insurance company			9.4	20.1
You			4.7	8.2
Other			3.4	4.7
Pressure to accept Scope of Works	66.99	<.001		
Not at all			30.4	15.4
Very little			7.5	6.0
Moderately			2.2	7.8
Very much			3.1	11.0
Completely			2.2	14.4
Contractor competent to complete work	61.66	<.001		
Yes			11.3	85.1
No			34.2	16.9
Work completed	67.77	<.001		
Completed			30.9	45.4
Not completed			11.6	9.1

Quality of work	96.99	<.001		
Excellent			0.3	11.9
Good			2.2	16.3
Satisfactory			5.0	6.6
Fair			11.0	7.8
Poor			13.2	9.4
Did not commence work			9.1	1.9
Did not complete work			4.7	0.6
Untrustworthiness of contractor	121.43	<.001		
Not at all			0.6	2.8
Very little			2.2	10.3
Moderately			12.2	29.8
Very much			11.6	5.6
Completely			18.8	6.0
Relationship status	21.40	<.001		
Yes			29.5	16.0
No			47.3	7.2

Table 10 shows the relationships between being scammed by contractors and other variables. Significant associations were identified regarding \$ value of assessment, EQC \$100,000 cap, repair option, contractor chosen, pressure to accept Scope of Works, allowed to see Scope of Works, contractors competence to complete work, work completed, quality of work, and untrustworthiness of contractors. The higher the \$ value of the assessment, the less likely participants felt they were being scammed by a contractor. Participants whose \$ value was between \$50,000 and \$500,000 had the highest risk of being scammed by a contractor. Participants with such a level of damage could have been

either in the 'under' or 'overcap' categories, however, the results also show that a slightly higher percentage in the 'undercap' category reported being scammed by a contractor. Scamming occurred most often for the category of 'home repair', while 'opting out' had the lowest reported scamming incidences. These 'repair option' categories refer to the options which residents were offered in the beginning of their recovery processes. 'Opting out' meant that residents would not be operating with EQC who were assigned to manage the Canterbury home repair processes, but would instead run the recovery process themselves by choosing contractors and operating with their desired timeframe. In the 'Home repair' category participants were eligible for repairs completed on their houses whereas 'Home rebuild' referred to a complete rebuild. In regards with 'contractor chosen', when the contractors were assigned by EQR scamming was reported to occur most often. Surprisingly, scamming occurred the most when participants were not being pressured into accepting the Scope of Works, as well as when participants trusted the contractor. Participants whose \$ value was between \$50,000 and \$500,000 and belonged to the 'undercap' category, had repairs done on their house, contractor was chosen by EQR, poor quality of work, as well as not having a partner had the highest risk of being scammed by a contractor. Next, correlations were calculated to find some means of comparing how different variables affect satisfaction levels (Figure 1) and the perception of being scammed (Figure 2).



Figure 1. *Bivariate correlations depicting relationships between satisfaction and statistically significant variables. Note:*

** $p < .05$. ** $p < .01$*

Figure 1 shows that, as expected, contractor competence and recommended contractor to others were positively associated with satisfaction. Whereas, \$100,000 EQC cap, feeling let down by the law, and sought legal help were negatively linked with satisfaction. Overall, the results support previously mentioned findings about dissatisfaction. Figure 2 describes the variables that associate with whether participants felt that they were scammed or not.

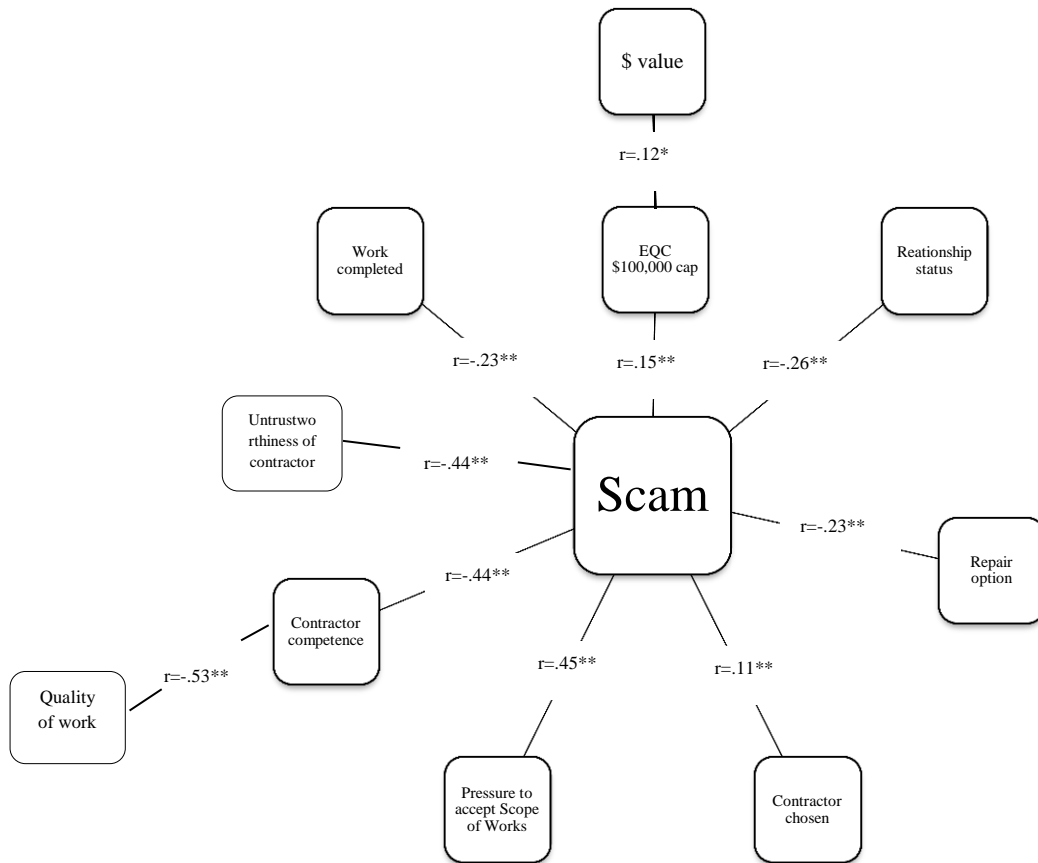


Figure 2. Bivariate correlations depicting relationships between being scammed and statistically significant variables.

Note: * $p < .05$. ** $p < .01$

As with the previous figure, Figure 2 illustrates previously mentioned findings about perceptions of being scammed.

Regression analyses

To further examine the prediction of satisfaction and being scammed, regression analyses were conducted. These analyses were run to obtain beta weight estimates, as well as t and p -values (see Tables 12 and 13).

Table 11

Simple linear regression for satisfaction: Beta weights, t-values, and p-values of scale variables

Measures	β	t-values	p-values
EQC \$100,000 cap	-.17	-3.97	.00**
Contractor competence	.30	6.03	.00**
Recommended contractor to others	.09	1.93	.06
Changed views toward contractors	-.16	-3.48	.00**
Sought legal help	-.02	-.41	.69
Feeling let down by law	-.12	-2.62	.00**

Note. * $p < .05$. ** $p < .01$. $R^2 = .52$ ($F = 24.26$, $p = .00$)

Simple linear regression was calculated to uniquely predict satisfaction based on different scale variables. Table 11 shows the beta weight estimates, as well as t and p -values of variables which satisfaction levels were regressed onto. Being under the EQC cap, perceptions of contractor competence or incompetence, changed views toward contractors, and feeling let down by the law were identified as significant predictors of satisfaction. Recommended contractor to others and sought were not significant. The raw B weight estimates (not shown in the Table) indicate that satisfaction level decreased by .77 as participants moved from 'undercap' to 'overcap' (recall that satisfaction here is measured on a seven-point scale from extremely dissatisfied to extremely satisfied). Participants' satisfaction levels increased by 1.39 as the perceived competence of a contractor changed from 'No' to 'Yes'. Satisfaction decreased by .81 as views changed toward contractors. Satisfaction also decreased by .34 if participants felt more let down by

law. Table 12 below shows the results of regressing the perceptions of being scammed onto significant predictor variables. In summary, statistically significant relationships between perceptions of satisfaction and other variables were found. The results show strong relationships between satisfaction levels and EQC \$100,000 cap, contractor competence, feeling let down by the law, and changed views toward contractors. The results from these analyses provide answers for the first research question (What were Canterbury residents perceptions toward contractors involved in the rebuild following the September 2010 and February 2011 earthquakes?).

Table 12

Simple linear regression for being scammed: Beta weights, t-values, and p-values of scale variables

Measures	β	t-values	p-values
\$ value of assessment	.14	2.25	.03*
EQC \$100,000 cap	.15	2.74	.01**
Repair option	-.09	-1.71	.09
Contractor chosen	.03	.47	.64
Pressure to accept Scope of Works	.18	3.37	.00**
Contractor competence	-.01	-.16	.88
How much work was completed	-.02	-.28	.78
Quality of work	-.33	-5.13	.00**
Untrustworthiness of contractor	-.24	-4.62	.00**
Relationship status	-.02	-.29	.77

Note. * $p < .05$. ** $p < .01$. $R^2 = .41$ ($F = 21.78$, $p = .00$)

Table 12 shows the beta weight estimates, as well as t and p -values of variables when the perception of being scammed was regressed onto the various predictor variables. \$ value of assessment, EQC \$100,000 cap, pressure to accept Scope of Works, poor quality of work, and untrustworthiness of contractors were significant predictors of being scammed. Overall, almost half of the participants reported feeling scammed by contractors in Canterbury. The correlations showed a significant relationship with being scammed and many other variables including \$ value of assessment, EQC \$100,000 cap, pressure to accept Scope of Works, competence of contractors, quality of work, and untrustworthiness of contractors. As with satisfaction, the results from these calculations provide answers for the second research question (Did contractor fraud occur in Canterbury following the September 2010 and February 2011 earthquakes?).

In addition, to examine whether differences were found between online and in-person responses, an independent samples t -test was run. In regards with the satisfaction variable, no significant differences were found between online and in-person responses; $t(211) = .15$, $p = .35$. Moreover, no differences were found when 'perceptions of being scammed' was utilised as the dependent variable; $t(211) = -.05$, $p = .92$.

Discussion

Summary of Findings

The overall research aim was to examine Canterbury residents' perceptions toward contractors involved in the rebuild following the September 2010 and February 2011 earthquakes. To address this, a questionnaire was created to gauge information about satisfaction levels toward Canterbury residents' experiences with the recovery process (*How satisfied are you with the outcome of the recovery efforts made to your property?*) and to examine whether residents felt they were victims of contractor fraud (*Did you feel as though you were a victim of a scam by the contractor?*). There has not been much previous research done in the area of fraud and natural disasters, which justifies the need to examine this topic further. Therefore, the present study aimed to contribute to emerging research in this area, raise awareness of the issue, and possibly prevent fraud following future disasters, as well as providing a benchmark for future research.

The results show that a high percentage of the participants were not satisfied with the recovery process. Often participants neither agreed with the property assessments made of their losses nor agreed with the plans made to recover their properties (*Would you agree with the overall assessment of the damage?*). Moreover, in many cases participants felt pressured when they were reluctant to accept these assessments and/or plans (*Did you feel pressured by any of the parties involved to accept a Scope of Works you did not think was right?*). A large number of people also reported feeling let down by parties involved with the recovery process (*Do you feel let down by the law?*) and experienced more stress with the recovery process than the earthquakes (*Did the recovery process cause more stress*

than the earthquake itself?). Participants also reported not being able to trust insurance providers as well as contractors (*How trustworthy would you consider insurance companies in general to be?*). Lastly, participants reported changing their opinions toward these two parties (presumably for the worse) due to their experiences with the recovery process (*Have your views towards builders in general changed due to the experiences you have had with contractors during the recovery process?*). Overall, many were dissatisfied with the process.

A number of significant relationships between satisfaction and different scale variables were found. Specifically, relationships between satisfaction levels and six different factors were found. These factors are: EQC \$100,000 cap, contractor competence, recommended contractors to others, sought legal help, feeling let down by law, and changed views toward contractors. These results show support for the dissatisfaction reported by Simons (2016) and Miles (2012) toward the recovery process. In a regression analysis, perceptions of contractor competence, changed views toward contractors, and feeling let down by the law were identified as significant predictors of satisfaction as expected. Surprisingly, those who reported being in the under the EQC \$100,000 cap were more likely to be dissatisfied. Recommended contractor to others and sought legal help were not significant. In conclusion, the results from these analyses provide answers for the first research question (What were Canterbury residents perceptions toward contractors involved in the rebuild following the September 2010 and February 2011 earthquakes?). Generally, participants reported being dissatisfied due to being under the EQC \$100,000 cap and contractor incompetence, which led to not recommending contractors to others, seeking legal help, feeling let down by law, and changing views toward contractors.

The second research question examined whether contractor fraud occurs in Canterbury. Almost half of the participants reported feeling scammed by contractors in

Canterbury after the 2010 and 2011 earthquakes. Furthermore, being scammed showed to have statistically significant relationships with a great deal of variables including \$ value of assessment, EQC \$100,000 cap, repair option, contractor chosen, pressure to accept Scope of Works, competence of contractors, work completed, quality of work, untrustworthiness of contractors, and relationship status. As with satisfaction, regression predicted the likelihood of being scammed based on scale variables. \$ value of assessment, EQC \$100,000 cap, pressure to accept Scope of Works, quality of work, and untrustworthiness of contractors were shown to be significant predictors of perceptions of being scammed. Hence, participants whose \$ value was between \$50,000 and \$500,000 and belonged to the 'undercap' category, were pressured to accept a Scope of Works, received poor quality of work, and participants who trusted their contractors had the highest risk of being scammed by a contractor. Surprisingly, as reported by previous research, demographic variables did not affect perceptions of being scammed. However, consistent with the results from Davila, Marquart, and Mullings (2005) and Trahan, Marquart, and Mullings (2005), contractor fraud is common following natural disasters, which occurs far more often than it is reported. Examining trends in contractor fraud following natural disasters appears to be an important aspect of the recovery process and deserves further investigation. Overall, the results showed that (1) participants were largely dissatisfied with the recovery process as well as perceived as being scammed by contractors and (2) they were dissatisfied and scammed for specific reasons.

Limitations and Future Research

This study includes both strengths and weaknesses. One limitation includes common method variance, hence measurement error. This could be an issue with this

report due to the fact that a single self-report survey was utilised as the only method of data collection.

Another limitation could arise from utilising an online questionnaire. Differences between participants with access to a computer and not having access could exist. This may result in exclusion of possible participants who do not have access to a computer but could give an accurate representation of the recovery process they have experienced. In an attempt to avoid this limitation a paper-version of the questionnaire was used. An independent sampled t-test was calculated to further examine whether differences were found between online and in-person responses. In regards with the satisfaction variable, no significant differences were found between online and in-person responses. Moreover, no differences were found when 'perceptions of being scammed' was utilised as the dependent variable.

Most of the participants who filled out the questionnaire were from the East-side of Christchurch where the recovery process has been known to be slow and even non-existent (Heather, 2011), or from people who relocated due to the earthquakes. On one hand, this could create a sampling issue and influence the generalisability of the results because the sample overall is likely to be more dissatisfied than the population of Christchurch at large and this means that the amount of dissatisfaction in Christchurch might be overestimated in this study. On the other hand, the results might be more representative due to the fact that more damage has been reported in the East and the sample method has the advantage of describing the reasons why the dissatisfied residents are dissatisfied. Future research could more closely examine the relationship between the locations of reported damage and recovery.

One of the strengths in this report was recruitment. Individuals were invited to participate through a variety of mediums, including social media; flyers distributed around schools, recreational centres, organisations, and libraries; and door knocking in temporary housing villages and randomly selected residential streets in Canterbury. There were a number of Facebook pages where the ad of the study was placed including, EQC and Insurance Woes, Christchurch Earthquake dodgy repairs, Supporting Christchurch earthquake, Rebuild Christchurch, Christchurch news, and Good news Canty. Distributing flyers, door knocking, and recruiting through variety of mediums were thus utilised to obtain a varied sample.

Another limitation for this study could be the complexity of the topic. There are many different aspects to this area of research, for example, the earthquakes and aftershocks and their impact themselves, different recovery phases, various parties involved, issues with insurance providers, issues with contractors, and the extent and length of the recovery, which makes it challenging to measure the right aspects to get the information needed for the right purposes. Furthermore, the parties involved with the recovery changed their regulations, rules, and policies throughout the recovery process. Clearly, the relationship between satisfactions levels and being scammed to different variables are only part of the larger picture.

Conclusions and Implications

This study found that a high percentage of participants were dissatisfied with the recovery process, perceived as being victims of contractor fraud, and have since changed their views toward parties involved with the recovery processes due to their negative experiences. Therefore, future research should contribute to the emerging research in this

area as well as raise awareness about these issues and form effective prevention techniques.

As discussed earlier, participants reported being the most dissatisfied when they were under the EQC \$100,000 cap. This shows that the presence of the EQC \$100,000 cap actually added to the complexity of the insurance and contractor processes which, in turn, led to dissatisfaction. The same can be said about the EQR managed home repair processes. Most participants reported feeling scammed by a contractor when EQR was chosen to run the recovery process. These results indicate that a source of problems lie within the processes operated by the government. According to Sadiqi, Coffey and Trigunarsyah (2012), post-disaster reconstruction processes need to be compatible with the severity of the disaster, requirements of the community and its people, as well as the rules and procedures put in place for emergency situations. If this compatibility fails to occur in a community, the impact of a disaster could be far greater. Hence, in order to reduce these problems in Canterbury, the existing rules and procedures that deal with the aftermath of a natural disaster need to be revised. Furthermore, consistent with Simons (2016), although there is a great deal of research done in the area of post-disaster reconstruction processes, there still seems to be a gap between theory and what actually happens after a disaster.

In conclusion, results show that residents of Canterbury are dissatisfied with the recovery process and perceive being victims of contractor fraud. Moreover, several predictors of satisfaction and scamming were found. These findings are important because they show support for the notion that a gap exists between the current literature and what is actually being reported and experienced during a recovery process. It is important to report this issue in order to increase the success of a recovery process in the future. This will benefit both the residents of a community affected by a natural disaster as well as the parties involved with the recovery processes locally and globally. Overall, the aim of this

research was to examine the perceptions of Canterbury residents toward contractors involved in the rebuild following the September 2010 and February 2011 earthquakes and whether contractor fraud occurred in Canterbury. The severity of these issues are illustrated in this report and in order to strengthen the link between natural disasters and financial exploitation further, future research should investigate this topic more.

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Appendix A



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Canterbury Residents' Perceptions of Rebuild Contractors Information Sheet

Hello, my name is Saara Harju and I am currently studying towards an MSc in Applied Psychology at the University of Canterbury. This project is being carried out as a requirement for my final year at UC under the supervision of Professor Simon Kemp.

If you choose to take part in this study, your involvement in this project will be to complete a short online questionnaire that examines Canterbury residents' perceptions toward contractors involved with the rebuild following the September 2010 and February 2011 earthquakes and aftershocks. This will approximately take 10-15 minutes. As a reward for participating, those who complete the questionnaire are invited to enter a draw to win one of 6 \$100 vouchers. In order to enter the draw to win one of the vouchers, it will be necessary to collect an email address at the end of the survey so you can be notified that you have won. This will be kept separate from the questionnaire you complete.

Participation is voluntary and you have the right to withdraw from completing the questionnaire. The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation. To ensure anonymity, the questionnaire will not include gathering of any identifying information. We guarantee that no one outside our research group will have access to your data. This includes myself and my associate supervisors. In regards with keeping the data safe and its disposal, standard HEC principles are being followed. A dissertation is a public document and will be available through the UC Library. Please email me if you would like to receive a copy of the summary of results of the project.

This project has been reviewed and approved by the University of Canterbury Human Ethics Committee, and participants should address any complaints to The Chair, Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (human-ethics@canterbury.ac.nz).

In such a case where a participant experiences distress, they should contact one of the agencies below:

Earthquake Support Coordinators 0800 777 846 (7 days a week 9am to 11pm)

Earthquake Government Helpline 0800 779 997 (Monday to Friday 8am to 5pm)

Canterbury Quake Support and Counselling Line 0800 777 846 (7 days a week 8am to 11pm)

Kind regards,

Saara Harju

Appendix B



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Canterbury Residents' Perceptions of Rebuild Contractors

Consent for the collection of your data

Please read the following note before completing the questionnaire.

I have read and understood the information provided to complete this questionnaire. In submitting this form I agree to complete the following online questionnaire and consent to publication of the results where anonymity will be preserved. I understand that participation is voluntary and that I have a right to change, withdraw, or access my information.

I understand that in order to participate I have to be 18 years of age and have had experience with contractors following the Canterbury earthquakes. I understand that the data will be held securely. When this information is no longer required, official university procedure will be followed to dispose of the data. I understand that a dissertation is a public document and will be available through the UC Library. I also understand that participants are able to receive a report on the findings of the study by contacting the researcher at the conclusion of the project.

If you wish to discuss any concerns about participation in the project contact details are: saara.harju@pg.canterbury.ac.nz (Saara).

I have read the above 'Consent for the collection of your data' and agree to those terms by clicking continue.

Appendix C

“Canterbury Residents' Perceptions of Rebuild Contractors”

1. How long have you lived in Christchurch?

< 1 year ☐ 1-9 years ☐ 10-19 years ☐ 20-29 years ☐ 30+years ☐

2. Were you present during the Canterbury earthquakes or the aftershocks?

Yes ☐ No ☐

3. Did you need or choose to relocate, due to damage, after any of the major earthquakes that have occurred in Canterbury?

Yes ☐ No ☐

4. Did you receive any damage to your property resulting from any of the major earthquakes?

Yes ☐ No ☐

5. What was the dollar value (NZD) of your assessed property damage as a result of the major earthquakes?

< \$10,000 ☐ \$10,000 to \$50,000 ☐ \$50,000 to \$100,000 ☐ \$100,000 to
500,000 ☐ \$500,000+ ☐ Currently unknown ☐

6. Would you agree with the overall assessment of the damage?

Yes ☐ Too high ☐ Too low ☐

7. Which of these applies to you?

Undercap ☐

Overcap ☐

*Refers to the EQC \$100,000 cap

8. How hard did your insurance company work to get you over the EQC cap?

Not at all ☐

Very little ☐

Moderately ☐

Very much ☐

Completely ☐

9. How trustworthy would you consider your insurance provider to be?

Not at all ☐

Very little ☐

Moderately ☐

Very much ☐

Completely ☐

10. Which of these options applies to you? (You can tick more than one)

Opting out ☐

Home repair ☐

Home rebuild ☐

Not resolved ☐

Other ☐

11. Please tick if you have made any of the following claims

Building claim ☐

Land claim ☐

Contents claim ☐

Other ☐

12. Who was the main building or rebuilding contractor chosen by?

EQC ☐

EQR ☐

Insurance Company ☐

You ☐

Other ☐

13. Did you feel pressured by any of the parties involved to accept a Scope of Works you did not think was right?

Not at all ☐

Very little ☐

Moderately ☐

Very much ☐

Completely ☐

14. Were you allowed to see the Scope of Works at any time during the recovery process?

Yes ☐

No ☐

N/A ☐

In the following section you will be asked about up to four contractors who worked on your property. There are four different sections for each contractor: Contractor 1, Contractor 2, Contractor 3, and Contractor 4. You are only asked to fill in as many contractor sections as applies to you.

Contractor 1

15. What kind of work were the contractors assigned to complete? (You can tick more than one)

Asbestos ☐ Bricks ☐ Carpet ☐ Ceiling ☐ Chimney ☐ Drains ☐
Driveway ☐ Doors ☐ Electronic systems ☐ Fencing ☐ Floor ☐
Foundation ☐ Garage ☐ Heating system ☐ Insulation ☐ Kitchen ☐ Landscaping ☐
Painting ☐ Plastering ☐ Plumbing ☐ Shower ☐ Sink ☐ Toilet ☐
Walls ☐ Water system ☐ Windows ☐ Complete rebuild ☐ Minor repairs
☐ Other ☐

16. Was a deposit required prior to the commencement of any work?

Yes ☐ No ☐ N/A ☐

17. Did you feel as though the contractor was competent to do the work?

Yes ☐ No ☐

18. How much work did the contractor complete?

Very little ☐ Some ☐ A lot ☐ Most ☐ All ☐

Did not start ☐ Still work in progress ☐

19. What was the quality of the contractors work?

Excellent ☐ Good ☐ Satisfactory ☐ Fair ☐ Poor ☐

Did not commence work ☐

Did not complete work ☐

20. How trustworthy would you consider this contractor to be?

Not at all ☐ Very little ☐ Moderately ☐ Very much ☐
Completely ☐

21. Were you pressured into signing off the repairs/rebuild done by this contractor?

Yes ☐ No ☐ N/A ☐

22. Were you reluctant to sign off the repairs?

Yes ☐ No ☐ N/A ☐

23. Did you feel as though you were a victim of a scam by the contractor?

Yes ☐ No ☐

24. Have you recommended or would you recommend this contractor to anyone else?

Yes ☐ No ☐

25. Did you get a contractor to do any non-repair work?

Yes ☐ No ☐

26. If yes, how much of your money did you put towards this non-repair work?

< \$1,000 ☐ \$1,000 to \$10,000 ☐ \$10,000 to \$50,000 ☐ \$50,000 to
100,000 ☐ \$100,000+ ☐ N/A ☐

Contractor 2 (questions 15-26)

15. What kind of work were the contractors assigned to complete? (You can tick more than one)

Asbestos ☐ Bricks ☐ Carpet ☐ Ceiling ☐ Chimney ☐ Drains ☐
Driveway ☐ Doors ☐ Electronic systems ☐ Fencing ☐ Floor ☐
Foundation ☐ Garage ☐ Heating system ☐ Insulation ☐ Kitchen ☐ Landscaping ☐
Painting ☐ Plastering ☐ Plumbing ☐ Shower ☐ Sink ☐ Toilet ☐
Walls ☐ Water system ☐ Windows ☐ Complete rebuild ☐ Minor repairs
☐ Other ☐

16. Was a deposit required prior to the commencement of any work?

Yes ☐ No ☐ N/A ☐

17. Did you feel as though the contractor was competent to do the work?

Yes ☐ No ☐

18. How much work did the contractor complete?

Very little ☐ Some ☐ A lot ☐ Most ☐ All ☐

Did not start ☐ Still work in progress ☐

19. What was the quality of the contractors work?

Excellent ☐ Good ☐ Satisfactory ☐ Fair ☐ Poor ☐

Did not commence work ☐ Did not complete work ☐

20. How trustworthy would you consider this contractor to be?

Not at all ☐ Very little ☐ Moderately ☐ Very much ☐

Completely ☐

21. Were you pressured into signing off the repairs/rebuild done by this contractor?

Yes ☐ No ☐ N/A ☐

22. Were you reluctant to sign off the repairs?

Yes ☐ No ☐ N/A ☐

23. Did you feel as though you were a victim of a scam by the contractor?

Yes ☐ No ☐

24. Have you recommended or would you recommend this contractor to anyone else?

Yes ☐ No ☐

25. Did you get a contractor to do any non-repair work?

Yes ☐ No ☐

26. If yes, how much of your money did you put towards this non-repair work?

< \$1,000 ☐ \$1,000 to \$10,000 ☐ \$10,000 to \$50,000 ☐ \$50,000 to
100,000 ☐ \$100,000+ ☐ N/A ☐

Contractor 3 (questions 15-26)

15. What kind of work were the contractors assigned to complete? (You can tick more than one)

Asbestos ☐ Bricks ☐ Carpet ☐ Ceiling ☐ Chimney ☐ Drains ☐
Driveway ☐ Doors ☐ Electronic systems ☐ Fencing ☐ Floor ☐
Foundation ☐ Garage ☐ Heating system ☐ Insulation ☐ Kitchen ☐ Landscaping ☐
Painting ☐ Plastering ☐ Plumbing ☐ Shower ☐ Sink ☐ Toilet ☐
Walls ☐ Water system ☐ Windows ☐ Complete rebuild ☐ Minor repairs
☐ Other ☐

16. Was a deposit required prior to the commencement of any work?

Yes ☐ No ☐ N/A ☐

17. Did you feel as though the contractor was competent to do the work?

Yes ☐ No ☐

18. How much work did the contractor complete?

Very little ☐ Some ☐ A lot ☐ Most ☐ All ☐

Did not start ☐ Still work in progress ☐

19. What was the quality of the contractors work?

Excellent ☐ Good ☐ Satisfactory ☐ Fair ☐ Poor ☐

Did not commence work ☐ Did not complete work ☐

20. How trustworthy would you consider this contractor to be?

Not at all ☐ Very little ☐ Moderately ☐ Very much ☐

Completely ☐

21. Were you pressured into signing off the repairs/rebuild done by this contractor?

Yes ☐ No ☐ N/A ☐

22. Were you reluctant to sign off the repairs?

Yes ☐ No ☐ N/A ☐

23. Did you feel as though you were a victim of a scam by the contractor?

Yes ☐ No ☐

24. Have you recommended or would you recommend this contractor to anyone else?

Yes ☐ No ☐

25. Did you get a contractor to do any non-repair work?

Yes ☐ No ☐

26. If yes, how much of your money did you put towards this non-repair work?

< \$1,000 <input type="checkbox"/>	\$1,000 to \$10,000 <input type="checkbox"/>	\$10,000 to \$50,000 <input type="checkbox"/>	\$50,000 to
100,000 <input type="checkbox"/>	\$100,000+ <input type="checkbox"/>	N/A <input type="checkbox"/>	

Contractor 4 (questions 15-26)

15. What kind of work were the contractors assigned to complete? (You can tick more than one)

Asbestos ☐ Bricks ☐ Carpet ☐ Ceiling ☐ Chimney ☐ Drains ☐
Driveway ☐ Doors ☐ Electronic systems ☐ Fencing ☐ Floor ☐
Foundation ☐ Garage ☐ Heating system ☐ Insulation ☐ Kitchen ☐ Landscaping ☐
Painting ☐ Plastering ☐ Plumbing ☐ Shower ☐ Sink ☐ Toilet ☐
Walls ☐ Water system ☐ Windows ☐ Complete rebuild ☐ Minor repairs
☐ Other ☐

16. Was a deposit required prior to the commencement of any work?

Yes ☐ No ☐ N/A ☐

17. Did you feel as though the contractor was competent to do the work?

Yes ☐ No ☐

18. How much work did the contractor complete?

Very little ☐ Some ☐ A lot ☐ Most ☐ All ☐

Did not start ☐ Still work in progress ☐

19. What was the quality of the contractors work?

Excellent ☐ Good ☐ Satisfactory ☐ Fair ☐ Poor ☐

Did not commence work ☐ Did not complete work ☐

20. How trustworthy would you consider this contractor to be?

Not at all ☐ Very little ☐ Moderately ☐ Very much ☐

Completely ☐

21. Were you pressured into signing off the repairs/rebuild done by this contractor?

Yes ☐ No ☐ N/A ☐

22. Were you reluctant to sign off the repairs?

Yes ☐ No ☐ N/A ☐

23. Did you feel as though you were a victim of a scam by the contractor?

Yes ☐ No ☐

24. Have you recommended or would you recommend this contractor to anyone else?

Yes ☐ No ☐

25. Did you get a contractor to do any non-repair work?

Yes ☐ No ☐

26. If yes, how much of your money did you put towards this non-repair work?

< \$1,000 ☐ \$1,000 to \$10,000 ☐ \$10,000 to \$50,000 ☐ \$50,000 to
100,000 ☐ \$100,000+ ☐ N/A ☐

27. Have your property repairs/rebuild been re-reviewed?

Yes ☐ No ☐ N/A ☐

28. Did this review result in?

No further action ☐ Cash pay-out ☐ Further repairs ☐ Rebuild ☐

N/A ☐

29. Did you feel complaints were handled correctly and fairly?

Yes ☐ No ☐ N/A ☐

30. Did you seek legal help at any point of the recovery process?

Yes ☐ No ☐ N/A ☐

31. Do you feel let down by the law?

Yes ☐ No ☐

32. Did the recovery process cause more stress than the earthquake itself?

Much more ☐ About the same ☐ Much less ☐

33. Have your views towards builders in general changed due to the experiences you have had with contractors during the recovery process?

Yes ☐ No ☐

34. How trustworthy would you consider contractors in general to be?

Not at all ☐ Very little ☐ Moderately ☐ Very much ☐
Completely ☐

35. How trustworthy would you consider insurance companies in general to be?

Not at all ☐ Very little ☐ Moderately ☐ Very much ☐
Completely ☐

36. How satisfied are you with the outcome of the recovery efforts made to your property?

Extremely Satisfied ☐ Moderately Satisfied ☐ Slightly Satisfied ☐
Neither Satisfied nor Dissatisfied ☐ Slightly Dissatisfied ☐
Moderately Dissatisfied ☐ Extremely Dissatisfied ☐

37. Which of these emojis would you use to describe your overall property recovery process?

☐☐☐☐☐

38. How long did this recovery (cash settlement/rebuild/repair) take?

< 1 month ☐ 1-12 months ☐ 1-5 years ☐ 5+ years ☐ Has not started ☐

Has not been completed ☐

Demographic information of questionnaire respondents

39. What is your age?

18-29 ☐ 30-39 ☐ 40-49 ☐ 50-59 ☐ 60-69 ☐ 70+ ☐

40. Gender: Male ☐ Female ☐

41. With which racial or ethnic category do you identify?

European (includes NZ European) ☐ NZ Maori ☐ Pacific Islander ☐ Asian ☐

African ☐ Latin American ☐ Middle Eastern ☐ Other ☐

42. Do you have a partner?

Yes ☐ No ☐

43. What is your current occupational status?

Full-time employment ☐ Part-time employment ☐ Full-time student ☐ Part-time student ☐ Unemployed ☐ Retired ☐

44. Which Christchurch suburb do you currently reside in?

Addington ☐ Aidanfield ☐ Aranui ☐ Avondale ☐
Avonhead ☐ Avonside ☐ Barrington ☐ Beckenham ☐
Belfast ☐ Bexley ☐ Bishopdale ☐ Bottle Lake ☐
Brooklands ☐ Bryndwr ☐ Burnside ☐ Burwood ☐
Cashmere ☐ Clifton ☐ Cracroft ☐ Dallington ☐
Diamond Harbour ☐ Duvauchelle ☐ Edgeware ☐

Fendalton <input type="checkbox"/>	Ferrymead <input type="checkbox"/>	Halswell <input type="checkbox"/>	Harewood <input type="checkbox"/>
Heathcote Valley <input type="checkbox"/>	Hei Hei <input type="checkbox"/>	Hillsborough <input type="checkbox"/>	Hoon Hay <input type="checkbox"/>
Hornby <input type="checkbox"/>	Huntsbury <input type="checkbox"/>	Ilam <input type="checkbox"/>	Kennedys Bush <input type="checkbox"/>
Linwood <input type="checkbox"/>	Lyttelton <input type="checkbox"/>	Mairehau <input type="checkbox"/>	Merivale <input type="checkbox"/>
Moncks Bay <input type="checkbox"/>	Mount Pleasant <input type="checkbox"/>	Murray Aynsley Hill <input type="checkbox"/>	
New Brighton <input type="checkbox"/>	Opawa <input type="checkbox"/>	Papanui <input type="checkbox"/>	Parklands <input type="checkbox"/>
Phillipstown <input type="checkbox"/>	Redcliffs <input type="checkbox"/>	Redwood <input type="checkbox"/>	Riccarton <input type="checkbox"/>
Richmond Hill <input type="checkbox"/>	Richmond <input type="checkbox"/>	St Albans <input type="checkbox"/>	St Martins <input type="checkbox"/>
Scarborough <input type="checkbox"/>	Shirley <input type="checkbox"/>	Sockburn <input type="checkbox"/>	Somerfield <input type="checkbox"/>
Southshore <input type="checkbox"/>	Spencerville <input type="checkbox"/>	Spreydon <input type="checkbox"/>	St Andrews Hill <input type="checkbox"/>
Strowan <input type="checkbox"/>	Sumner <input type="checkbox"/>	Sydenham <input type="checkbox"/>	Upper Riccarton <input type="checkbox"/>
Wainoni <input type="checkbox"/>	Waltham <input type="checkbox"/>	Westmorland <input type="checkbox"/>	Wigram <input type="checkbox"/>
Woolston <input type="checkbox"/>	Other <input type="checkbox"/>		

Thank you for participating in this study. If you wish to be included in the draw to win one of 6 \$100 Westfield vouchers please write your email address below. This will be kept separate from the questionnaire you have completed.

I wish to be included in the draw to win one of 6 \$100 Westfield vouchers

Email address: _____

Appendix D



Have you...

- ✓ **experienced damage to your property following the Canterbury earthquakes**
- ✓ **dealt with at least one contractor due to these earthquakes**

... If your answer was YES, then I need you!

Hello, my name is Saara Harju and I am currently studying towards an MSc in Applied Psychology at the University of Canterbury. As a course requirement for my final year at UC, I am completing a dissertation. The purpose of my research is to examine Canterbury residents' attitudes/perceptions toward contractors involved with the rebuild following the September 2010 and February 2011 earthquakes and aftershocks.

I am currently seeking participants who have dealt with or still are dealing with contractors/builders due to the earthquake and are over 18 years of age. You will complete a short questionnaire, which will take approximately 10-15 minutes. In return you can go in the draw to win one of 6 \$100 vouchers.

The survey is completely anonymous and confidential and the data will only be accessed by me and my supervisors. This study has been reviewed and approved by the University of Canterbury Human Ethics Committee. If you are interested please go to the website below:

http://canterbury.qualtrics.com/SE/?SID=SV_4ZVUy2VvpJIWbKI

Thank you for your time.

Kind regards,

Saara Harju

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Appendix E

Table 13

Distribution of Sample by suburbs

Suburb	Frequency	%
Addington	1	0.5
Aidanfield	0	0
Aranui	8	3.8
Avondale	0	0
Avonhead	4	1.9
Avonside	1	0.5
Barrington	2	0.9
Beckenham	1	0.5
Belfast	2	0.9
Bexley	0	0
Bishopdale	5	2.3
Bottle Lake	0	0
Brooklands	0	0
Bryndwr	8	3.8
Burnside	5	2.3
Burwood	4	1.9
Cashmere	7	3.3
Clifton	4	1.9
Cracroft	0	0
Dallington	3	1.4

Diamond Harbour	0	0
Duvauchelle	0	0
Edgware	3	1.4
Fendalton	5	2.3
Ferrymead	3	1.4
Halswell	3	1.4
Harewood	1	0.5
Heathcote Valley	5	2.3
Hei Hei	3	1.4
Hillsborough	1	0.5
Hoon Hay	4	1.9
Hornby	0	0
Huntsbury	1	0.5
Ilam	0	0
Kennedys Bush	0	0
Linwood	10	4.7
Lyttleton	1	0.5
Mairehau	1	0.5
Merivale	0	0
Moncks Bay	0	0
Mount Pleasant	0	0
Murray Aynsley Hill	0	0
New Brighton	17	8.0
Opawa	1	0.5
Papanui	1	0.5
Parklands	5	2.3
Phillipstown	1	0.5

Redcliffs	2	0.9
Redwood	0	0
Riccarton	3	1.4
Richmond Hill	0	0
Richmond	6	2.8
St. Albans	5	2.3
St. Martins	0	0
Scarborough	0	0
Shirley	2	0.9
Sockburn	5	2.3
Somerfield	6	2.8
Southshore	5	2.3
Spencerville	1	0.5
Spreydon	9	4.2
St Andrews Hill	0	0
Strowan	0	0
Sumner	7	3.3
Sydenham	6	2.8
Upper Riccarton	1	0.5
Wainoni	3	1.4
Waltham	1	0.5
Westmorland	0	0
Wigram	1	0.5
Woolston	6	2.8
Other	23	10.8
